

CLAIMS

5        1. A laser unit comprising a shutter having a reflective member for reflecting a laser beam, a motor for moving the shutter between a position in an optical path of the laser beam and a position out of the optical path, and a shutter position control for commanding the motor,

10                wherein the laser unit comprises an encoder for detecting a rotational position of the motor, the shutter position control receives position data of the shutter by detecting a signal from the encoder and commands the motor based on the position data.

15        2. A laser unit as set forth in claim 1, wherein the shutter intercepts the laser beam intended to progress out of the laser unit.

20        3. A laser unit as set forth in claim 1, wherein the shutter changes the direction of progress of the laser beam inside of the laser unit.

25        4. A laser unit as set forth in claim 1, wherein the laser unit comprises a judging device for judging whether the shutter is operated according to a command from the shutter position control or not, the judging device limits a power supply for laser excitation when the judging device judges the shutter to be not operated according to the command.

30        5. A laser unit as set forth in claim 1, wherein the laser unit comprises a moving device for forcibly moving the shutter to a safely waiting position, where the laser beam is intercepted by the shutter and is prevented going out of the laser unit, when the motor does not provide a certain driving force or a driving mechanism of the shutter is disordered.

35        6. A laser unit as set forth in claim 5, wherein the moving device comprises a spring mechanism for moving the shutter to the safely waiting position.